AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A spark plug comprising:

a center electrode;

a ground electrode opposing the center electrode in such a manner as to define a spark discharge gap between the center electrode and the ground electrode; and

an igniter ~~fixed~~ welded to ~~at least~~ one of the center electrode and the ground electrode in such a manner as to face the spark discharge gap, the igniter ~~being~~ including an igniter section composed of a metallic material whose principal component is one of a platinum and an iridium and a weldment section composed of the metallic material of the igniter section and a material of the one of the center electrode and the ground electrode, the metallic material of the igniter section ~~comprising~~ including an oxygen content of not more than 120 ppm~~, wherein at least a portion of the igniter is fixed to the at least one of the center electrode and the ground electrode via a weldment~~.

2. (previously presented): The spark plug as claimed in claim 1, wherein the metallic material which composes the igniter is an alloy containing a sub-component of a nickel.

3. (original): The spark plug as claimed in claim 1, in which the metallic material composing the igniter is at least one of a platinum-nickel alloy, a platinum-iridium alloy, a platinum-iridium-nickel alloy, and an iridium-nickel alloy.

4. (original): The spark plug as claimed in claim 3; in which the platinum-nickel alloy contains the nickel in a range from 2% to 40% of a total mass; in which the platinum-iridium alloy contains the iridium in a range from 2% to 98% of the total mass; in which the platinum-iridium-nickel alloy contains the iridium in a range from 2% to 40% of the total mass and contains the nickel in a range from 2% to 40% of the total mass, each of the iridium and the nickel of the platinum-iridium-nickel alloy being lower than the platinum in respect of a percentage content of the total mass; and in which the iridium-nickel alloy contains the nickel not less than 2% of the total mass.

5. (original): The spark plug as claimed in claim 1, in which the spark discharge gap defined between the center electrode and the ground electrode is not more than 0.6 mm.

6. (original): The spark plug as claimed in claim 5, in which the spark discharge gap defined between the center electrode and the ground electrode is in a range from 0.2 mm to 0.6 mm.

7. (original): The spark plug as claimed in claim 1, in which the spark plug is mounted on an internal combustion engine which is a gas engine.

8. (currently amended): A spark plug comprising:

a center electrode;

a ground electrode opposing the center electrode in such a manner as to define a spark discharge gap between the center electrode and the ground electrode; and

an igniter ~~fixed~~ welded to ~~at least~~ one of the center electrode and the ground electrode in such a manner as to face the spark discharge gap, the igniter ~~being~~ including an igniter section composed of a metallic material whose principal component is one of a platinum and an iridium and a weldment section composed of the metallic material of the igniter section and a material of the one of the center electrode and the ground electrode, the metallic material of the igniter section comprising a crystal grain of more than 50μm in a mean diameter, and ~~comprising~~ including an oxygen content of not more than 300 ppm~~, wherein at least a portion of the igniter is fixed to the at least one of the center electrode and the ground electrode via a weldment~~.

9. (original): The spark plug as claimed in claim 8, in which the mean diameter of the crystal grain of the igniter is defined as a mean value of a maximum interval between a pair of parallel lines which are tangent to an outline of the crystal grain.

10. (previously presented): The spark plug as claimed in claim 8, wherein the metallic material which composes the igniter is an alloy containing a sub-component of a nickel.

11. (original): The spark plug as claimed in claim 8, in which the metallic material composing the igniter is at least one of a platinum-nickel alloy, a platinum-iridium alloy, a platinum-iridium-nickel alloy, and an iridium-nickel alloy.

12. (previously presented): The spark plug as claimed in claim 11; in which the platinum-nickel alloy contains the nickel in a range from 2% to 40% of a total mass; in which the platinum-iridium alloy contains the iridium in a range from 2% to 98% of the total mass; in which the platinum-iridium-nickel alloy contains the iridium in a range from 2% to 40% of the total mass and contains the nickel in a range from 2% to 40% of the total mass, each of the iridium and the nickel of the platinum-iridium-nickel alloy being lower than the platinum in respect of a percentage content of the total mass; and in which the iridium-nickel alloy contains the nickel not less than 2% of the total mass.

13. (original): The spark plug as claimed in claim 8, in which the spark discharge gap defined between the center electrode and the ground electrode is not more than 0.6 mm.

14. (original): The spark plug as claimed in claim 13, in which the spark discharge gap defined between the center electrode and the ground electrode is in a range from 0.2 mm to 0.6 mm.

15. (original): The spark plug as claimed in claim 8, in which the spark plug is mounted on an internal combustion engine which is a gas engine.

Claims 16-20 (canceled).

21. (previously presented): The spark plug as claimed in claim 8, in which the metallic material of the igniter comprises a crystal grain of not less than 53μm in a mean diameter.

22. (canceled).

23. (currently amended): A method of producing a spark plug, said spark plug comprising:

a center electrode;

a ground electrode opposing the center electrode in such a manner as to define a spark discharge gap between the center electrode and the ground electrode; and

an igniter ~~fixed~~ welded to ~~at least~~ one of the center electrode and the ground electrode in such a manner as to face the spark discharge gap, the igniter ~~being~~ including an igniter section composed of a metallic material whose principal component is one of a platinum and an iridium and a weldment section composed of the metallic material of the igniter section and a material of the one of the center electrode and the ground electrode, the metallic material of the igniter section comprising a crystal grain of more than 50μm in a mean diameter, and ~~comprising~~ including an oxygen content of not more than 300 ppm~~, wherein at least a portion of the igniter is fixed to the at least one of the center electrode and the ground electrode via a weldment~~,

the method comprising the following sequential steps of:

carrying out a heat treatment on a metallic material chip at a heat treatment temperature of not less than 800°C and not more than a melting point of the metallic material chip, so that a crystal grain of the metallic material chip is more than 50μm in a mean diameter with the metallic material chip comprising an oxygen content of not more than 300 ppm, the metallic material chip comprising a principal component of one of a platinum and an iridium;

welding the metallic material chip to at least one of a center electrode and a ground electrode; and

forming an igniter based on the metallic material chip.

24. (previously presented): The method as claimed in claim 23; in which the heat treatment of the metallic material chip is carried out in one of a reduced pressure atmosphere and a hydrogen atmosphere, so that the metallic chip is recrystrallized to grow the crystal grain to more than 50μm in the mean diameter, the mean diameter of the crystal grain of the metallic material chip being defined as a mean value of a maximum interval between a pair of parallel lines which are tangent to an outline of the crystal grain; and in which the metallic material chip comprising the platinum is subjected to a resistance welding while the metallic chip comprising the iridium is subjected to a laser welding.

25. (currently amended): A method of producing a spark plug, said spark plug comprising a center electrode;

a ground electrode opposing the center electrode in such a manner as to define a spark discharge gap between the center electrode and the ground electrode; and

an igniter ~~fixed~~ welded to ~~at least~~ one of the center electrode and the ground electrode in such a manner as to face the spark discharge gap, the igniter ~~being~~ including an igniter section composed of a metallic material whose principal component is one of a platinum and an iridium and a weldment section composed of the metallic material of the igniter section and a material of the one of the center electrode and the ground electrode, the metallic material of the igniter section comprising a crystal grain of more than 50μm in a mean diameter, and ~~comprising~~

including an oxygen content of not more than 300 ppm~~, wherein at least a portion of the igniter is fixed to the at least one of the center electrode and the ground electrode via a weldment~~,

the method comprising the following sequential steps of:

welding a metallic material chip to at least one of a center electrode and a ground electrode, the metallic material chip comprising a principal component of one of a platinum and an iridium;

carrying out a heat treatment on the metallic material chip welded to the at least one of the center electrode and the ground electrode at a heat treatment temperature of not less than 800°C and not more than a melting point of the metallic material chip, so that a crystal grain of the metallic material chip is more than 50μm in a mean diameter with the metallic material chip comprising an oxygen content of not more than 300 ppm; and

forming an igniter based on the metallic material chip.

26. (previously presented): The method as claimed in claim 25; in which the heat treatment of the metallic material chip is carried out in one of a reduced pressure atmosphere and a hydrogen atmosphere, so that the metallic material chip is recrystallized to grow the crystal grain to more than 50μm in the mean diameter, the mean diameter of the crystal grain of the metallic material chip being defined as a mean value of a maximum interval between a pair of parallel lines which are tangent to an outline of the crystal grain; and in which the metallic material chip comprising the platinum is subjected to a resistance welding while the metallic chip comprising the iridium is subjected to a laser welding.

Claims 27-28 (canceled).